

## **Part II Stormwater Management Program Technical Criteria**

### **4VAC50-60-40. Authority and applicability.**

~~This part specifies technical criteria for every stormwater management program and land-disturbing activity.~~

Pursuant to the Virginia Stormwater Management Law, § 10.1-603.2 et seq. of the Code of Virginia, the Board is required to take actions ensuring the general health, safety and welfare of the citizens of the Commonwealth as well as protecting the quality and quantity of state waters from the potential harm of unmanaged stormwater. In addition to other authority granted to the Board under the Stormwater Management Law, the Board is authorized pursuant to §§ 10.1-603.2:1 and 10.1-603.4 to adopt regulations that specify minimum technical criteria for stormwater management programs in Virginia, to establish statewide standards for stormwater management from land disturbing activities, and to ensure that there will be no unreasonable degradation of properties, water quality, stream channels, and other natural resources.

In accordance with the Board's authority, this part establishes the minimum technical criteria and stormwater management standards that shall be employed by a delegated or state-administered local stormwater management program to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater runoff resulting from land disturbing activities.

### **4VAC50-60-50. General. Repeal**

### **4VAC50-60-53. General Requirements**

The natural, physical, chemical, biological and hydrologic characteristics and the water quality and quantity of the receiving state waters shall be maintained, protected, or improved to the maximum extent practicable. Purposes include but are not limited to supporting state designated uses and water quality standards.

### **4VAC50-60-56. Applicability of other laws and regulations**

Land disturbing activities shall comply with all applicable laws and regulations related to stormwater management, including but not limited to the Virginia Stormwater Management Law, Virginia Erosion and Sediment Control Law and the Chesapeake Bay Preservation Act except as provided in § 10.1-603.3 subsection I and all applicable regulations adopted in accordance with those laws. Nothing in this chapter shall be construed as limiting the rights of other federal and state agencies from imposing stricter technical criteria or other requirements as allowed by law.

### **4VAC50-60-60. Water quality. Repeal**

### **4VAC50-60-63. Water Quality**

In order to protect the quality of state waters and to control nonpoint source pollution, a local program shall apply the following minimum technical criteria and statewide standards for stormwater management to land disturbing activities:

A. Pursuant to §10.1-603.4, the Board is authorized to establish minimum design criteria for measures to control nonpoint source pollution. In order to address periodic modifications due

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to continuing advances in types of control measures and engineering methods, such design criteria guidance is provided in the Virginia Stormwater Management Handbook. In requiring the implementation of such control measures on the development site of the land disturbing activity, a local program shall, at a minimum, incorporate the following technical criteria and stormwater management standards:

1. A local program shall require new development for residential uses on undeveloped land to implement control measures with minimum design criteria such that the post-development pollutant load of the development site shall not exceed 0.22 0.28 pounds of total phosphorus per acre per year and 2.68 pounds of total nitrogen per acre per year.

2. A local program shall require new development for non-residential uses to implement control measures with minimum design criteria such that the post-development pollutant load of the development site shall not exceed 0.45 pounds of phosphorus per acre per year.

3.2. A local program shall require that projects occurring on prior developed lands achieve a 44% reduction in total phosphorous load and 28% reduction in total nitrogen load from pre-existing conditions. The post-development pollutant load for projects occurring on prior developed lands shall not be required to be less than 0.28 pounds of total phosphorous per acre per year and 2.68 pounds of total nitrogen per acre per year. For redevelopment projects, a local program shall require that:

a. Projects occurring on prior developed lands that will result in impervious areas of less than or equal to 50% shall implement control measures with minimum design criteria such that the post-development pollutant load of the land disturbing site shall not exceed 0.45 pounds of phosphorus per acre per year;

b. Projects occurring on prior developed lands that will result in impervious areas of greater than 50% and less than or equal to 75% shall implement control measures with minimum design criteria such that the post-development pollutant load of the land disturbing site shall not exceed 0.60 pounds of phosphorus per acre per year; and

c. Projects occurring on prior developed lands that will result in impervious areas of greater than 75% shall implement control measures with minimum design criteria such that the post-development pollutant load of the land disturbing site shall not exceed 0.90 pounds of phosphorus per acre per year.

3. Total nitrogen load and total phosphorus load shall be calculated using a method approved by the Department.

4. In addition to the above requirements, if a land disturbing activity discharges stormwater to a segment of a state water that has been designated as impaired by the 303(d) Impaired Waters List and a TMDL for that segment has been established and approved by the United States Environmental Protection Agency, a local program shall require that additional control measures be implemented such that post-development conditions are targeted toward the improvement of water quality for the listed impairment to the maximum extent practicable.

B. If the applicant demonstrates to the satisfaction of the local program authority that post-development pollutant load water quality technical criteria setout in subsection A cannot be achieved onsite, offsite controls and in lieu fees may be considered to achieve the necessary reduction per the following:

1. New development pollutant loads shall not exceed 0.37 pounds of total phosphorus per acre per year and 3.5 pounds of total nitrogen per acre per year through onsite controls. Projects occurring on prior developed lands shall at a minimum achieve a 33% reduction in total

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phosphorous load and 21% reduction in total nitrogen load from pre-existing conditions through onsite controls.

2. Once the minimum onsite phosphorus and nitrogen load and reduction criteria set out in subsection B1 have been met, offsite practices acceptable to the local program authority shall be utilized to meet the remaining required pollutant load reductions for the development or redevelopment project. The offsite reductions shall be achieved within the same HUC or the adjacent downstream HUC per guidance provided in the Virginia Stormwater Management Handbook.

3. If the applicant has demonstrated to the satisfaction of the local program authority that the criteria set out in subsection B2 can not be met offsite, then the remaining load reductions shall be achieved by:

a. The purchase of nitrogen or phosphorus credits in accordance with the General Virginia Pollutant Discharge Elimination System (VPDES) Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed in Virginia (9 VAC 25-820). This option shall only be available within the Chesapeake Bay Watershed;

b. The payment of a fee deposited in a non-reverting Stormwater Mitigation fund established by the local program for the restricted purpose of achieving the required load reductions pursuant to a Board approved plan and schedule. Such fees shall be based on the project cost per pound of reduction per onsite controls used in subsection A and the fee shall be approved by the local program authority; or

c. A combination of the reduction strategies set out in subsections 3a and 3b.

B C. The utilization of nonpoint source pollution control measures, including best management practices (BMPs), not included in the Virginia Stormwater Management Handbook which target appropriate nonpoint source pollutants or address water quality standards or goals may be utilized in meeting the technical criteria and stormwater management standards of subsection A at the discretion of the local program authority provided calculations and scientific studies verify pollutant reductions.

C D. A local stormwater management program shall encourage the reduction of impervious cover and the implementation of LID in achieving the technical criteria set forth in subsection A. The reductions achieved by LID measures shall be calculated per the guidance provided in the Virginia Stormwater Management Handbook.

~~D E. In an effort to reduce degradation or to achieve water quality standards, additional control measures may be required on a case-by-case basis to maintain and protect water quality.~~

#### **4VAC 50-60-66 Water Quantity**

In order to protect state waters from the potential harms of unmanaged quantities of stormwater runoff, the following technical criteria and statewide standards for stormwater management shall apply to land disturbing activities:

A. Properties and ~~receiving~~ state waters ~~downstream of~~ receiving stormwater runoff from any land-disturbing activity shall be protected from sediment deposition, erosion and damage due to changes in runoff rate of flow and hydrologic characteristics, including but not limited to, changes in volume, velocity, frequency, duration, and peak flow rate of stormwater runoff in accordance with the minimum water quantity standards set out in this section and the guidance found in the Virginia Stormwater Management Handbook.

B. Pursuant to §10.1-603.4:7, a local program shall require that land disturbing activities:

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1. Maintain post-development runoff rate of flow and runoff characteristics that replicate, as nearly as practicable, the existing predevelopment runoff characteristics and site hydrology, or

2. If stream channel erosion or localized flooding is an existing predevelopment condition, improve upon the contributing share of the existing predevelopment runoff characteristics and site hydrology per design methodology and calculations guidance found in the Virginia Stormwater Management Handbook.

C. Any land disturbing activity shall satisfy the requirements of subsection B above if the practices implemented on the site are designed to:

1. Detain the water quality volume and to release it over 48 hours;

2. Detain and release over a 24-hour period the expected rainfall resulting from the one year, 24 hour storm; and

3. Reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming that it was in good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition.

Such land disturbing activity shall further be exempt from any flow rate capacity and velocity requirements for natural or manmade channels as defined in any other section of this regulation.

D. For the purposes of determining compliance with subsection B, a local program shall require the following:

1. Pre-development stream characteristics shall be verified by physical surveys and calculations that are consistent with good engineering practices **that are acceptable to the local program authority.**

2. Flooding and channel erosion impacts to receiving streams due to land-disturbing activities shall be calculated for each point of discharge from the land disturbance and such calculations shall include any runoff from the balance of the watershed which also contributes to that point of discharge. Flooding and channel erosion impacts shall be evaluated taking the entire upstream watershed into account, including the modifications from the planned land disturbance. Good engineering practices and calculations shall be used to demonstrate post development stream characteristics, flooding and channel erosion impacts.

3. For purposes of computing predevelopment runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation. Predevelopment runoff calculations utilizing other land cover values may be utilized provided that it is demonstrated to and approved by the local program authority that actual site conditions warrant such considerations.

E. A local stormwater management program shall encourage the reduction of impervious cover and the implementation of LID in achieving water quantity reductions. The reductions achieved by LID measures shall be calculated per the guidance provided in the Virginia Stormwater Management Handbook.

**4VAC50-60-70. Stream channel erosion. Repeal**

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**4VAC50-60-73. Frequency**

The specified design storms shall be defined as a 2 and 10-year 24-hour storm using the site specific rainfall distribution recommended by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS). The permit issuing authority may allow for the use of the Modified Rational (critical storm duration) Method for pond designs with a maximum drainage area of 200 acres.

**4VAC50-60-76. Linear development projects**

Linear development projects shall control post-development stormwater runoff in accordance with a stormwater management plan or a watershed or regional comprehensive stormwater management plan approved in accordance with these regulations.

**4VAC50-60-80. Flooding. Repeal**

**4VAC50-60-83. Stormwater management impoundment structures or facilities**

A. Construction of stormwater management impoundment structures or facilities within tidal or nontidal wetlands and perennial streams shall be avoided to the maximum extent practicable. ~~and should only be considered in situations where the following criteria have been met:~~

- ~~1. An alternative analysis has been performed and no practicable alternative exists;~~
- ~~2. The alternative analysis has demonstrated that the adverse environmental impacts caused by the impoundment are less damaging than the harm caused by uncontrolled stormwater or the benefits of the impoundment are in the public interest and such interests exceed the adverse environmental impacts expected from its construction and maintenance;~~
- ~~3. The alternative analysis has demonstrated that the permittee will take all reasonable steps to: (i) avoid adverse environmental impacts, (ii) minimize the adverse impact where avoidance is impractical and, (iii) provide mitigation of the adverse impact on an in kind basis where applicable;~~
- ~~4. A demonstration that the siting of the facility, its operation and maintenance will not adversely impact the instream beneficial uses or result in substantive degradation of water quality; and~~
- ~~5. A comprehensive operation and maintenance plan has been developed.~~

B. Construction of stormwater management impoundment structures or facilities within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall be avoided to the maximum extent practicable. When this is demonstrated to be unavoidable, all stormwater management facility construction shall be in compliance with all applicable requirements under the National Flood Insurance Program, 44 CFR Part 59 and local floodplain ordinances. [add TVA??]

C. Stormwater management impoundment structures that are not covered by the Impounding Structure Regulations (4VAC50-20) shall be engineered for structural integrity for the 100-year storm event. In no case shall the design standard be less than the 100-year storm event for any stormwater management impoundment structure.

D. Construction of stormwater management impoundment structures or facilities may occur in karst areas only after a thorough geological study of the area has been conducted in accordance with guidelines setout in the Virginia Stormwater Management Handbook.

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E. No adverse environmental impacts shall occur to any identified karst features and no permanent stormwater management impoundment structures or facilities will shall only be constructed in karst features in accordance with guidelines setout in the Stormwater Management Handbook. Discharge of stormwater directly into a karst feature without quantity and quality controls shall not occur unless otherwise allowed by law.

**4VAC50-60-86. Riparian Buffers**

A local program shall develop a riparian buffer plan that includes riparian protection strategies for the maintenance of existing buffers and the establishment of new buffers. To the maximum extent practicable, such a plan shall require that riparian buffers adjacent to state waters on development and redevelopment sites be maintained during and following the land disturbing activity. If no such riparian buffers are existing at the time of the land disturbing activity, then such plan shall require that riparian buffers be established. The local program riparian buffer plan shall be approved by the Board. The Board may grant an exception to the 35-foot width requirement provided that the local program demonstrates to the satisfaction of the Board that the reduced width will satisfactorily protect water quality and quantity.

**4VAC50-60-90. Regional (watershed-wide) stormwater management plans. Repeal**

**4VAC50-60-93. Stormwater Management Plan Development**

A. A stormwater management plan for a regulated land disturbing activity shall apply these stormwater management technical criteria to the entire land disturbing activity.

B. Individual lots or planned phases of developments shall not be considered separate land-disturbing activities, but rather the entire development shall be considered a single land disturbing activity.

C. The stormwater management plan shall consider all sources of surface runoff and all sources of subsurface and groundwater flows converted to surface runoff.

**4VAC50-60-96. Comprehensive stormwater management plans**

A. Localities are encouraged to develop comprehensive stormwater management plans which meet the water quality and quantity requirements of this chapter on a watershed-wide basis. State and federal agencies intending to develop large tracts of land are encouraged to develop or participate in comprehensive stormwater management plans where practicable.

B. The objective of a comprehensive stormwater management plan is to address the stormwater management concerns in a given watershed with optimal economy and efficiency and to better integrate stormwater management facilities and practices. The implementation of comprehensive stormwater management plans shall mitigate the impacts of new development, and provide for the remediation of erosion, flooding or water quality problems caused by existing development within the given watershed.